

Appl. No. 10/690,379
Amdt. dated June 10, 2004
Reply to Office Action of May 19, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (withdrawn): A turbulence-free ventilated workstation comprising:
 - a) a work chamber having an access opening into the work chamber, the access opening having an upper edge;
 - b) a horizontal air deflector plate adjacent the upper edge of the access opening to divert a portion of air entering the access opening upwardly within the chamber, whereby said diverted air eliminates an airflow eddy current.
2. (withdrawn): The ventilated workstation of claim 1, wherein said air deflector is an inverted airfoil that is positioned horizontally and extends rearwardly at an upward angle of approximately forty-five degrees from horizontal.
3. (withdrawn): The ventilated workstation of claim 1, wherein said air deflector is a box shaped air deflector extending upwardly and rearwardly.
4. (withdrawn): The ventilated workstation of claim 1, wherein said air deflector plate has a first curve extending upwardly and rearwardly extending at an angle of approximately forty-five degrees above horizontal to join a second curve extending rearwardly and downwardly back towards horizontal.

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5. (withdrawn): The ventilated workstation of claim 4, wherein said plate further includes slotted openings spaced at intervals of approximately one-third and two-thirds the length of the plate.

6. (withdrawn): The ventilated workstation of claim 1, wherein said air deflector is an extended box shaped baffle having a lower section that extends upwardly and rearwardly inside said work chamber at an angle of approximately forty-five degrees and a horizontal section that is positioned near the top of said workstation.

7. (withdrawn): The extended box shaped baffle of claim 6, further including slotted openings spaced at intervals of approximately one-third and two-thirds the length of the baffle.

8. (withdrawn): The ventilated workstation of claim 1, further including a sash door for adjusting the size of said access opening.

Claims 9-12 (canceled)

13. (currently amended): A method of designing a turbulence-free laboratory safety enclosure comprising the steps of:

a) defining a computational model that numerically represents the structure of a laboratory safety enclosure including a computational model that numerically represents the structure of an air deflector used to reduce turbulent air flow within the laboratory safety enclosure while the enclosure interior is at a negative air pressure relative to external air pressure, thereby urging external air to flow into the enclosure interior, said

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computational models being inputs into computational resources usable to solve a set of computational fluid dynamics equations;

b) solving said set of computational fluid dynamics equations to determine an approximation of fluid dynamics within the laboratory safety enclosure;

c) displaying a representation of said approximation of fluid dynamics within the laboratory safety enclosure; and

d) adjusting said computational model that numerically represents the structure of the air deflector to further reduce turbulence represented by the display of said fluid dynamics approximation.

14. (original): The method of claim 13, wherein said set of computational fluid dynamics equations are derived by applying the principles of conservation of mass, momentum and energy to a control volume of fluid.

15. (original): The method of claim 13, wherein said computational models is automatically generated by software from computer-aided-drafting drawings.

16. (original): The method of claim 13, wherein said adjusting said computational model includes editing computer-aided-drafting drawings used to generate said computational models.

17. (currently amended): A method of designing a turbulence-free laboratory safety enclosure comprising the steps of:

a) defining a computational model that numerically represents the structure of a laboratory safety enclosure including a computational model that numerically represents

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the structure of an air deflector used to reduce turbulent air flow within the laboratory safety enclosure while the enclosure interior is at a negative air pressure relative to external air pressure, thereby urging external air to flow into the enclosure interior, said computational models being inputs into computational resources usable to solve a set of computational fluid dynamics equations;

b) solving said set of computational fluid dynamics equations to determine an approximation of fluid dynamics within the laboratory safety enclosure;

c) displaying a representation of said approximation of fluid dynamics within the laboratory safety enclosure;

d) adjusting said computational model that numerically represents the structure of the air deflector to further reduce turbulence represented by the display of said fluid dynamics approximation; and

e) repeating steps b) through d) until a desired reduction in turbulence is displayed.

18. (original): The method of claim 17, wherein said set of computational fluid dynamics equations are Navier-Stokes equations.

19. (original): The method of claim 17, wherein said computational model represents an air deflector.

20. (original): The method of claim 17, wherein said computational model represents a fume hood enclosure.